a) $D_{max} \sim 2.0$, D_{min} (.05)

b) $\gamma \sim 2.0$

c) $R > 200$ lines/mm
at optimum exposure

a) ~~Maximum useful input contrast with this material is~~ 30:1
~~Useful dynamic range input contrast~~

d) Maximum useful dynamic range
in reach at an input contrast
of 30:1

25X1

from

June 15, 1966

25X1

History of Emergency Services on Diazo Light Table Printer

13 Jan 66 Chain skipping teeth - adjusted

18 Feb 66 Repaired chain

18 Feb 66 Repaired chain

18 Mar 66 Repaired Chain

1 Apr 66 Chain slipping - adjusted

4 Apr 66 Removed film chips and repaired chain

8 Apr 66 Removed jammed film and repaired chain

11 Apr 66 Removed jammed film and repaired chain

13 Apr 66 Replaced teflon tape on guides in upper feed roll assembly - repaired chain.

25X1

representative also made two service calls during the period 13 Jan thru 13 Apr.

MEMORANDUM FOR:

$NH_3 + H_2O \rightarrow NH_4OH$

$2NH_3 + H_2O + CaSO_4 \rightarrow$

$(NH_4)_2SO_4 + Ca(OH)_2$

100 ppm /

70 mg/m³ air.

(DATE)

Project No. 99144-6 -- "Evaluation of the [redacted] Diazo Contact Printer, Model # 101" 25X1

ABSTRACT

An experimental evaluation has been undertaken to determine the characteristics of the Diazo film materials. A prototype, [redacted] Diazo Contact Printer, Processor, was utilized to conduct this study by. A positive film material of a 9½ x 9½" format produced by [redacted] was exposed and processed on this printer. An evaluation was then made to determine the resolving power, and the amount of gray tones retained in the exposed material. "The Buckbee Mears" 1951 Air Force Test Target was utilized to conduct the resolution tests with, and a continuous tone film chip was also exposed to determine the quality of the gray tones. The Diazo Contact Printer was found to be a unit that could be operated with the minimum of instructions. The reproduced continuous tone material was found to be of high quality with some loss of the gray tones. The resolution was of maximum quality according to all reading taken and plotted. There is only one draw back to this processor. That is, the amount of ammonia fumes radiated from the unit when in operation. The unit is a well constructed piece of reproduction equipment. Its one draw back can be corrected by the installation of an exhaust system.

25X1

25X1

Problem Statement:

The purpose of this study is to evaluate the [redacted] Diazo Contact Printer, Processor, model #101", and determine the characteristics of the diazo film material. A detailed evaluation will be conducted to determine the ability of the Diazo printer to produce film positives of the highest quality. A study will be undertaken to determine if the Diazo printer functions in the manner specified by the manufacturer. A determination will be made as to the resolving power of the Diazo material and its sensitivity to a mercury arc light source. An evaluation will also be made to determine the stability of the image during use and prelong storage, and its resistance to abrasion, and tearing under normal handling conditions. 25X1

This will include a study to determine the optimum processing requirements. An evaluation will be made of its characteristic curve and gamma.

Narrative:

The test objects that are to be used to evaluate the Diazo Printer are an Eastman Kodak calibrated 21 step tablet, a high contrast Buckbee Mears 1951 Air Force bar target and a continuous tone negative. The items listed above will then be exposed at various settings.

A determination is to be made by taking density reading on a Densitometer, and plotted on a Sensitometric Data Sheet.

The characteristic curve will be plotted and the gamma determined. The reproduced image of the bar target will be examined through a microscope to record its highest group order.

The [redacted] Printer, Processor will also be evaluated as to the amount of time it takes to bring the unit into full operation. A determination will also be made as to the proper operating pressures. The amount of 25X1

ammonia fumes present in the room area while the unit is operating. Its functions and operating techniques with the idea in mind of making improvements on the present methods of operation. A study will be made to determine if there is a loss of print quality due to fluctuation of the electric current.

The exposed and processed film material will then be evaluated. The MacBeth Densitometer, model T D-102 will be the instrument that all density reading will be plotted and entered on Sensitometric Data Sheets. The characteristic curve plotted and the straight-line portion of the characteristic curve and gamma plotted (See Appendix A)

Exposure time	Group order	Lines/MM
5 Second	6.1	64
10 " "	7.3	162.5
15 " "	7.4	182.4
20 " "	7.4	182.4
25 " "	7.5	204.5
30 " "	7.6	228.1
35 " "	7.5	204.5
40 " "	7.5	204.5

The Itek Bar targets exposed on the Diazo Film were viewed with a Bausch & Lomb microscope at a magnification of 200-X. This data was then evaluated as to its resolution in Lines/MM. (See Appendix B)

Conclusion:

The schedule for the completion of this report has no time limit as such. It is an open project that is being worked on in conjunction with other projects. A preliminary study has been completed and an evaluation made and recorded. The final evaluation will then be made and a complete report submitted concerning the [redacted] Diazo Contact Printer, Processor. 25X1

PROJECT NO. 99144-6 DATE 8 MAR 1966 INSTRUMENT MACBETH-TD-102 #32060 READER 25X1

REMARKS TEST READINGS TAKEN OF A 21 STEP TABLET EXPOSED ON DIAZO FILM, ON THE [redacted] DIAZO PRINTER 25X1

STRIP PROCESSOR

DEVELOPER FIX

TIME TEMP °F TIME TEMP °F

STROKE RATE /MIN RHEOSTAT SET

/MIN WASH: TIME TEMP °F

OTHER PROCESSING OR DENSITOMETRIC DETAILS

IDENTIFICATION NO.	30 sec	30 sec	35 sec	35 sec	40 sec	40 sec						
STEP NO. 21	1.87	1.86	1.89	1.89	1.88	1.88						
20	1.85	1.85	1.89	1.89	1.88	1.88						
19	1.84	1.84	1.90	1.89	1.88	1.88						
18	1.84	1.84	1.90	1.89	1.87	1.88						
17	1.84	1.84	1.88	1.88	1.86	1.86						
16	1.83	1.83	1.88	1.88	1.86	1.86						
15	1.83	1.82	1.88	1.87	1.86	1.86						
14	1.81	1.80	1.86	1.86	1.83	1.84						
13	1.80	1.79	1.85	1.85	1.82	1.83						
12	1.78	1.78	1.82	1.82	1.80	1.81						
11	1.75	1.75	1.79	1.78	1.76	1.78						
10	1.74	1.74	1.75	1.75	1.70	1.70						
9	1.70	1.70	1.70	1.69	1.64	1.64						
8	1.63	1.63	1.62	1.62	1.53	1.54						
7	1.52	1.52	1.49	1.50	1.36	1.38						
6	1.36	1.36	1.30	1.30	1.18	1.18						
5	1.14	1.13	1.04	1.03	0.90	0.89						
4	0.86	0.87	0.70	0.70	0.53	0.53						
3	0.50	0.50	0.32	0.38	0.20	0.20						
2	0.20	0.19	0.09	0.10	0.06	0.06						
1	0.06	0.07	0.05	0.05	0.05	0.05						
FOG LEVEL	0.05	0.05	0.05	0.05	0.05	0.05						